CLAIMS

What is claimed is:

1.   A method of managing metadata in a metadata transmission server, comprising:

generating a plurality of metadata fragment data by partitioning metadata to be transmitted;

selecting a predetermined metadata fragment data from among the plurality of metadata fragment data;

generating metadata-related information using the selected metadata fragment data; and

transmitting the selected metadata fragment data and the metadata-related information with data format information indicating a type of the selected metadata fragment data.

2.   The method of claim 1, wherein the selected metadata fragment data, the metadata-related information, and the data format information of the selected metadata fragment data are transmitted in a metadata container.

3.   The method of claim 1, wherein the data format information indicates whether the selected metadata fragment data has a binary XML format or a text XML format.

4.   The method of claim 1, wherein the generated plurality of metadata fragment data are predetermined semantic units of the metadata to be transmitted.

5.   The method of claim 2, wherein a metadata authentication level flag specifying a metadata authentication level is further contained in the metadata container.

6.   The method of claim 1, wherein the metadata-related information is metadata digest information obtained by substituting the selected metadata fragment data into a unidirectional function.

7.   The method of claim 6, wherein the unidirectional function is a hash function.

8. The method of claim 2 further comprising:

generating metadata authentication signature information using the metadata-related information and a first encryption key; and

inserting the metadata authentication signature information in the metadata container containing the selected metadata fragment data.

9. The method of claim 8, wherein the metadata authentication signature information is obtained by substituting the metadata-related information and the first encryption key into a unidirectional function.

10. The method of claim 9, further comprising:

encrypting the first encryption key using a second encryption key; and

inserting the encrypted first encryption key into the metadata container containing the selected metadata fragment data.

11. The method of claim 2, wherein the plurality of metadata fragment data and corresponding metadata-related information are inserted into the metadata container, and each metadata fragment data and the corresponding metadata-related information are connected to each other by pointer information.

12. The method of claim 8, wherein the plurality of metadata fragment data and corresponding metadata-related information and metadata authentication signature information are inserted into the metadata container, and each metadata fragment data and the corresponding metadata-related information and metadata authentication signature information are connected to one another by pointer information.

13.   A method of managing metadata in a client device that receives the metadata, comprising:

reading predetermined metadata fragment data, metadata-related information, and data format information indicating a type of the predetermined metadata fragment data, from the received metadata;

generating metadata-related information using the predetermined metadata fragment data and the read data format information; and

determining whether the received metadata has been authenticated by comparing the generated metadata-related information with the read metadata-related information.

14.   The method of claim 13, wherein the predetermined metadata fragment data and the metadata-related information and the data format information are received in a metadata container.

15.   The method of claim 13, wherein the data format information indicates whether the predetermined metadata fragment data has a binary XML format or a text XML format.

16.   The method of claim 13, wherein the metadata fragment data is a predetermined semantic unit of the received metadata.

17.   The method of claim 14, wherein an authentication level flag specifying a metadata authentication level is further included in the metadata container.

18.   The method of claim 13, wherein the metadata-related information is metadata digest information obtained by substituting the predetermined metadata fragment data into a unidirectional function.

19.   The method of claim 18, wherein the unidirectional function is a hash function.

20.   The method of claim 14, wherein a plurality of metadata fragment data and corresponding metadata-related information are included in the metadata container, and each metadata fragment data and the corresponding metadata-related information is connected to each other by pointer information; and

the metadata-related information reading comprises correlating the received metadata fragment data and a corresponding metadata-related information according to the pointer information.

21.   A method of managing metadata in a client device that receives the metadata, comprising:

receiving metadata fragment data of the received metadata, metadata-related information, data format information indicating a type of the metadata fragment data, metadata authentication signature information, and an encrypted first encryption key;

generating metadata-related information using the metadata fragment data of the received metadata and the data format information;

decrypting the encrypted first encryption key using a second encryption key stored in the client device;

generating metadata authentication signature information using the generated metadata-related information and the decrypted first encryption key; and

determining whether the received metadata has been authenticated by comparing the generated metadata authentication signature information with the received metadata authentication signature information.

22.   The method of claim 21, wherein the metadata-related information is metadata digest information obtained by substituting the metadata fragment data into a unidirectional function.

23.   The method of claim 22, wherein the unidirectional function is a hash function.

24.   The method of claim 21, wherein the generated metadata authentication signature information is obtained by substituting the generated metadata-related information and the decrypted first encryption key into a unidirectional function.

25.   The method of claim 24, wherein the unidirectional function is a hash function.

26.   The method of claim 21, wherein the metadata fragment data, the metadata-related information, the data format information, the metadata authentication signature information, and the encrypted first encryption key are received in a metadata container.

27.   The method of claim 21, wherein the data format information indicates whether the metadata fragment data used to generate the metadata-related information has a binary XML format or a text XML format.

28.   The method of claim 21, wherein the metadata fragment data is a predetermined semantic unit of the received metadata.

29.   The method of claim 26, wherein an authentication level flag specifying a metadata authentication level is further included in the metadata container and the determining of the metadata authentication is according to the authentication level flag.

30.   The method of claim 26, wherein a plurality of metadata fragment data and corresponding respective metadata-related information and metadata authentication signature information are inserted into the metadata container, and each metadata fragment data and the corresponding metadata-related information and metadata authentication signature information are connected to one another by pointer information; and

the receiving of the authentication signature information of the metadata fragment data comprises correlating the received metadata fragment data and a corresponding metadata authentication signature information according to the pointer information.

31.   A metadata transmission server managing metadata security of a multimedia system, comprising:

a programmed computer processor controlling the server according to a process of:

generating a plurality of metadata fragment data by partitioning metadata to be transmitted,

selecting a predetermined metadata fragment data from among the plurality of metadata fragment data,

generating metadata-related information using the selected metadata fragment data, and

transmitting the selected metadata fragment data and the metadata-related information with data format information indicating a type of the selected metadata fragment data.

32.   A multimedia metadata authentication management system, comprising:

a metadata transmission server comprising a programmed computer processor controlling the server according to a process of:

generating a plurality of metadata fragment data by partitioning metadata to be transmitted,

selecting a predetermined metadata fragment data from among the plurality of metadata fragment data,

generating metadata-related information using the selected metadata fragment data, and

transmitting the metadata including the selected metadata fragment data and the metadata-related information with data format information indicating a type of the selected metadata fragment data; and

a metadata receiving client comprising a programmed computer processor controlling the client according to a process of:

receiving the metadata fragment data, the metadata-related information and the data format information indicating the type of the metadata fragment data, transmitted from the metadata transmission server,

generating metadata-related information using the transmitted metadata fragment data and the data format information, and

determining whether the received metadata has been authenticated by comparing the generated metadata-related information with the transmitted metadata-related information.

33.   A metadata authentication system, comprising:

a metadata transmission server comprising a programmed computer processor controlling the server according to a process of:

partitioning to be transmitted metadata into fragments,

generating a metadata authentication data container comprising one of the metadata fragments and metadata fragment authentication information using the one metadata fragment, and

transmitting the metadata authentication container; and

a metadata receiving client comprising a programmed computer processor controlling the client according to a process of:

generating metadata fragment authentication information using the transmitted metadata fragment and the container metadata fragment authentication information, and

authenticating the transmitted metadata by comparing the generated metadata fragment authentication information with the transmitted container metadata fragment authentication information.

34.   The system of claim 33, wherein a format of the metadata authentication container comprises a header section, a metadata fragment section and a metadata fragment authentication information section.

35.   The system of claim 34, wherein the metadata authentication container is defined according to a simple object access protocol (SOAP) message.

36.   The system of claim 35, wherein the SOAP message comprises a SOAP header comprising the metadata fragment data authentication information and a SOAP body comprising the metadata fragment.

37.   The system of claim 33, wherein

the programmed computer processor of the metadata transmission server further:

includes a plurality of the metadata fragments in the metadata authentication container,

allots indexing information to each included metadata fragment, and

includes the indexing information in the metadata authentication container; and

the metadata receiving client further comprises a data storage storing an index list and predetermined metadata fragments, and the programmed computer processor of the metadata receiving client uses the stored predetermined metadata fragments according to the metadata authentication container indexing information and the stored index list to generate the metadata fragment authentication information.

38.   The system of claim 33, wherein

the programmed computer processor of the metadata transmission server further:

includes a plurality of the metadata fragments and corresponding metadata fragment authentication information in the metadata authentication container,

includes pointer information connecting each included metadata fragment to the corresponding metadata fragment authentication information; and

the programmed computer processor of the metadata receiving client determines the transmitted container metadata fragment authentication information of the transmitted metadata fragment based upon the pointer information.

39.   The system of claim 38, wherein the metadata transmission server comprises a right management protection system to maintain the pointer information as a source level authentication of the transmitted metadata.

40.   The system of claim 33, wherein the metadata fragment authentication information is encryption management information regarding encryption of the fragment data.

41.   A method of authentication metadata in a metadata transmission system, comprising:

authenticating a fragment of metadata;

associating information about the authentication to the metadata fragment; and

authenticating the metadata transmitted based upon the metadata fragment authentication information.

42.   A metadata receiving client receiving the metadata from a metadata transmission server via a network, the metadata transmission server partitioning to be transmitted metadata into fragments, and transmitting to the metadata receiving client a metadata authentication data container comprising one of the metadata fragments and metadata fragment authentication information using the one metadata fragment, the metadata receiving client comprising:

a programmed computer processor controlling the metadata client according to a process of:

generating metadata fragment authentication information using the transmitted metadata fragment and the container metadata fragment authentication information, and

authenticating the transmitted metadata by comparing the generated metadata fragment authentication information with the transmitted container metadata fragment authentication information.

43.   A machine readable storage storing at least one computer program controlling networked computers according to a process comprising:

performing metadata transmission-level or source-level authentication in any directional type data channel environment by partitioning to be transmitted metadata into fragments, and processing a metadata authentication data container comprising at least one of the metadata fragments and metadata fragment authentication information using the one metadata fragment and a data format type of the metadata.